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CLAY WORK

KATHERINE MORRIS LESTER

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GREEK VASE IN THE BRITISH MUSEUM.

CLAY WORK

A HANDBOOK FOR TEACHERS

BY

KATHERINE MORRIS LESTER

THE MANUAL ARTS PRESS

PEORIA, ILLINOIS

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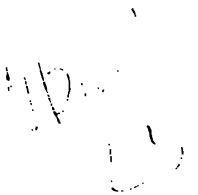

PREFACE

IN many of our most progressive schools clay-work is receiving marked attention as a means of hand training and art expression. But the progress of such work has been somewhat retarded owing to a lack of available information on the subject.

The object of this book is: first, to help teachers in acquiring the technique of clay-working; second, to offer several types of clay-work from which selection may be made. Detailed description of the processes of working, with numerous illustrative photographs are given; also photographs of finished models which, with a few exceptions, have been modeled by pupils from ten to twelve years of age in the public schools.

The author is indebted to Charles A. Bennett, professor of manual arts, Bradley Polytechnic Institute, Peoria, Ill., for many valuable suggestions; also to Fred D. Crawshaw, principal of the Franklin School, Peoria, for encouragement in developing many of the types of clay-work illustrated.

KATHERINE M. LESTER.

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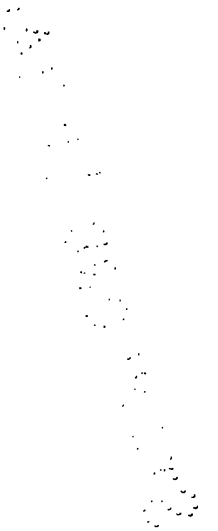

plied by nature—the thumb. In the earlier stages of a model, the fingers and thumb will give the general form desired, and the tool will only be needed in refining the work later on.

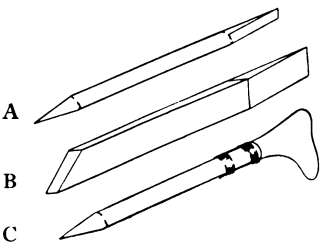

FIGURE 1.

A—A simple wooden tool shaped like a sharpened pencil at one end and cut to a broad flat edge at the other.

B—A broader tool cut to resemble a chisel.

C—A tool similar to A with a hook of medium-sized wire. secured to one end. This tool will be found especially useful in pottery building.

FIGURE 2.

A boxwood tool, used by professional modelers. This tool can be secured from any dealer in art supplies.

For pottery work a number of plaster bats[1] of different sizes can be made very easily. These, being circular in form, will be found most desirable for pottery building, since the piece as it grows can be readily turned about from time to time, and the form studied with far more ease and satisfaction than when being built upon a board or slate.

The matter of firing pottery has been most satisfactorily solved in the advent of the portable kiln. These kilns are quite reasonable in price, ranging from sixty dollars upward.

It is hardly to be supposed that children will do anything with glazing beyond, possibly, the selection of color. The mixing and grinding of glaze is a very delicate matter

[1] *Directions for making plaster bats*:—Secure a variety of sizes of the ordinary baking tins; one-half dozen small size, 2½ inches in diameter; and one-half dozen larger size, 3½ inches in diameter; two or three large-sized pie pans. Dissolve soap in water, making it a little thicker than cream. Brush this quite generously over the inside of the pans just before filling them with plaster.

When ready to mix the plaster have a good-sized bucket half filled with water. The plaster is sifted through the fingers over the surface of the water. This is stirred slowly, the plaster continuing to be added until it begins to appear at the surface. Now the mixture is stirred more thoroughly. After resting a moment, it is ready to pour into the tins. Fill the pans to a level surface and leave them to harden.

After twelve or fifteen hours the pans may be turned over and tapped upon the table, the plaster bat readily falling out. The process may be repeated until a sufficient number of bats are obtained.

and should not be undertaken by the uninitiated. To meet this necessity, however, a number of pottery shops mix and grind glazes of good color at reasonable prices.

The best prepared clay can be readily obtained from potteries direct, or pottery supply shops at the rate of one-half cent to five cents per pound. Local clays may be used and when found either too porous or too plastic may be remedied by the addition of fine sand.

A large plaster-lined or zinc box with close-fitting cover is a necessity for keeping the clay in the proper condition for working.

CHAPTER II.

The Technique of Clay-Modeling.

THE properties of any material govern the manipulation of that material; out of this necessary handling of a material grows technique. The understanding of one's material and the proper handling of it, or why one works in one way rather than another, cannot but insure a more perfect expression.

A B C D

FIGURE 3.

Symbols from Indian life.— A. Day; B. The Sun; C. The four winds, also a symbol of life; D. The four winds.

Clay is a most plastic material with which to deal, and because of this plasticity can be controlled better by the fingers than by means of tools. The latter are only necessary for the more detailed work. It is most important to realize from the beginning that the

clay is not to be scraped with tools, sandpapered and pulled about indiscriminately with the fingers. Each touch should be definite and meant to express a desired quality.

Clay-modeling is strictly a constructive or building up process, piece being added to piece; in this respect it is quite the opposite of sculpture, which is the chipping away of material.

A B

FIGURE 4.

The correct handling of clay can be quite definitely illustrated in the modeling of such simple forms as are shown in Fig. 3 or in the tile, Fig. 4, upon which any desired form may be built.

A, B, C, or D, Fig. 3, may be first drawn upon paper, care being taken to make a well defined outline. The clay form is then built upon the paper. Small coils of clay about the thickness of a slate pencil are rolled out and the form outlined with these. The inside edge of the coil is pressed down and well on to the paper as in A, Fig. 5, using the thumb and fingers only. The inside space is

then filled piece by piece, the bits of clay being well pressed together, B, Fig. 5. Attention must be given to keeping the outline correct and not allowing it to become distorted by the subsequent adding of clay. When the form has reached the required thickness, viz., three-eighths of an inch, the next step is the smoothing of the surface. This is done by moistening the thumb on a damp cloth

A B C

FIGURE 5.

and brushing firmly over the surface. The simple depression running throughout the form gives opportunity for some practice in controlling the movement of the thumb. This movement of the thumb in modeling, to obtain certain effects, becomes quite the natural way of working after a few such exercises as the above. Moreover, this manner of building, and this use of the thumb and fingers cannot be too strongly emphasized at the outset of all clay-work. The simple impression is made by closing all the

fingers of the hand, then with the thumb, moistened on a damp cloth, placed on the surface and drawn steadily and with a certain amount of pressure (depending upon the depression desired), and around and throughout the form, C, Fig. 5. This naturally displaces some clay, which forms a ridge around the depression. The ridge is afterward smoothed back and into the form, leaving the edge round-

A B C

FIGURE 6.

ed. In D, Fig. 3, the impression is enlarged by simply circling the thumb about and letting the depression conform somewhat to the outline of the form.

In making a tile, the constructive way of working is strictly adhered to. This building may be done upon a modeling board, slate or paper. Coils of clay about one-half inch in thickness are rolled out and the outside edge of the tile formed. The inside space is next filled in working with small bits of clay well worked or wedged together. Much of the lasting quality of the clay model depends upon the way in which the pieces are worked

together. If loosely worked, they will, in the process of drying, fall apart. After the tile has been built to the desired thickness, it must be well smoothed, turned over, and if any loosely worked places appear on this side, they must be filled in and the clay well wedged together.

The form to be built may be sketched upon the tile with a pointed tool, or if desired, it may be first drawn upon

A B

FIGURE 7.

paper, blackened with a soft pencil and transferred to the clay. This is done by placing the drawing face down upon the tile and rubbing over the paper a few times. The paper is then removed and the form outlined with small coils of clay. The inner space is then filled with bits of clay firmly worked together, and the form modeled to the desired relief. After smoothing the surface, the impression throughout the form is made by the controlled movement of the thumb.

If one has any regard for the nature of the material, or for a good result, correct handling of clay in modeling is essential.

CHAPTER III.

Study from Natural Forms.

NATURE furnishes an excellent store of material in the way of models for clay-work.

The development of these natural forms in clay goes hand in hand with the study of drawing. In fact, all models should be studied with pencil in connection with the clay-work, since a thorough knowledge of the form to

A B C

Figure 8.

be developed underlies successful work in clay. Further, if a finished drawing is made after the form has been modeled in clay, the pupil is much better able to do good

work with the pencil, having become more familiar with the form through the modeling.

In making a selection for study, the aim should be to secure the large, simple and more durable forms, such as the various seed-pods, fruits, and the larger and coarser forms of bud and leaf.

A B C

FIGURE 9.

As far as possible each child should be supplied with an individual model from which to work; thus, without any inconvenience to another, he may handle and examine the study at will while perfecting his own. The work in hand should be constantly compared to the original. If the object is firm, as in the case of fruit and seed-pods, feeling the surface is far more helpful than mere looking at it; in fact, by touch, the slight inequalities of surface may come to be detected.

If the study is from the leaf forms, the larger and coarser leaves are far better than the smaller and finer, the former being more desirable and not becoming limp and ragged with handling.

In A, Fig. 9, a tile of suitable size has been made and the leaf lightly sketched upon it with a pencil or pointed tool. A coil of clay about one-half an inch in thickness is then rolled out and the outline formed. The coils are pressed well on to the clay, especially on the inside. In this way the outline is obtained directly and accurately and need not be disturbed by the subsequent adding of clay. The inner space is next filled with small pieces of clay, well worked together as in B, Fig. 9. In C, Fig. 9, sufficient clay has been added to bring the form to the desired relief.

FIGURE 10.

This is the most simple form of leaf modeling. As one gains control in handling the clay, these same leaf forms in a more natural position, the undulations of the surface appearing and giving more life and vitality to the model, may be attempted. These variations of surface are not only to be imitated but emphasized in the clay.

In Fig. 10 the leaf of the lily has been modeled in this manner. The method of procedure is quite the same as

in the more simple treatment—the outline first secured, the middle space filled in, then sufficient clay added to give the desired variety in the relief.

This sort of modeling gives a certain freedom of expression which is particularly pleasing; however, this freedom should not engender a looseness of expression but should be controlled through a definite and thorough knowledge of the form.

A B C

FIGURE 11.

Often it adds to the effectiveness of a model to undercut the form somewhat, Fig. 10. This is done by running the tool under the edge of the form, from one-eighth to one-quarter of an inch, pressing downward upon the tile. In case this leaves any roughness to either tile or model, it may be smoothed again with the moistened fingers.

In modeling from leaf forms no attempt should be made to make the substance of the clay as thin as the leaf itself.

If this is done the model crumbles and breaks upon drying. The undercutting of the edge gives the effect of the thinness of the natural form quite sufficiently.

Most naturalistic studies can easily be done without the use of tools, working only with the fingers and thumb, and the tool merely used to reach the places that are quite minute, or for picking out the more detailed parts.

In models where there is an overlapping of leaves, as in some of the simple bud forms, the under form is first built and carried to a fair degree of finish, A, Fig. 11; next, a coil of clay outlining the under leaf is placed in position and worked well on to the form, and the necessary pieces of clay added to bring up the relief; the coil outlining the overlapping leaf is next put in place, and the form modeled to the desired degree, C, Fig. 11. The tool may be used to undercut the edge of the leaves a trifle as well as to obtain a clean, clear edge of the form on the tile.

FIGURE 12.

In modeling the more detailed studies, such as grapes, grouped bananas, etc., children invariably prefer to make the single grape, or the separate banana and build up the model by placing each in its respective place. This sort of work is not to be encouraged. The study should be treated as a mass at the beginning, the general outline of the whole being indicated on the tile and the inner space being filled in with bits of clay. As the form grows, attention is paid to the shape and variety of the parts of the

PLATE I.

Studies modeled by children from nine to eleven years of age.

model and the reliefs brought out in the building. For the necessary detail, undercutting, etc., the tool is used.

Many of the natural forms may be simplified and repeated to make either a decorative border or pattern. This makes a beginning for the study of modeled design and may be of great service when natural specimens are difficult to obtain.

FIGURE 13.

PLATE II.

Suggestive Studies.

CHAPTER IV.

Study from the Figure.—Relief.

MODELING in low relief from the figure fits in most admirably with the study in drawing. In fact, the work in clay should be carried on much the same as the study in pencil.

Three important aims in modeling from the figure are:

(a) More clear and definite ideas of the human figure.

(b) To develop skill in the use of the hands.

(c) To give a medium through which to develop constructive powers.

All detail must be eliminated and the figure reduced to its essentials—proportion of parts, direction of line, action. Figure posing in which the action is quite pronounced, and which may bear directly upon some story or historical incident gives an added enthusiasm to the study.

The proportions of the figure should first be studied. The length of the head, including the neck, may be taken as a unit of measure. With this unit, the distance from the shoulder to the hip is secured; next, the length from the hip to the knee, and then from the knee to the bottom of the foot. The width of the shoulder and hip should also be consldered. It will usually be found that the head, including the neck, is more than half the body in

length; the leg, including the foot, is about the same length as the body; the foot is one-half the distance from the knee to the bottom of the foot; the arm, including the hand, reaches to the middle of the thigh; the elbow falls at the belt line.

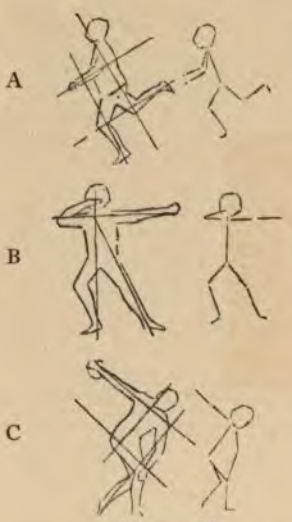

FIGURE 14.

In each of the illustrations, Fig. 14, there is a certain action that must be emphasized. This can be quite definitely brought to the pupil's attention by pointing out the direction of the few leading lines of the posed figure. The pupils may also study such simple figures as A, B, and C.

After these points have been discussed and decided upon, so that the pupils have an intelligent understanding of what is to be done, the work in clay is begun.

A tile of suitable size and about three-eighths of an inch in thickness is first made. The important direction lines may be drawn upon the tile, and, if desired, the figure may be briefly sketched about these.

The clay sketch is then built up working in the head first, as a mass, then on through the other parts of the figure.

No effort should be made to finish one particular part before the complete form has been well placed on the tile.

It is quite preferable, as in drawing, to work all over the figure, bringing it quite gradually up to the required degree of modeling.

All work should be carried on with constant reference to the posed figure. The relief may be kept in one plane, or it may be more developed by showing that the parts of the figure nearest the pupil will have the highest relief.

FIGURE 15.

PLATE III.

Modeled by children from ten to twelve years of age.

Study from the Figure.—Round.

CLOSELY allied to the study of the figure in relief is the study of the figure in the round.

It is much better to have the model sitting than standing, as clay legs could not support the heavy body. Positions of rest, such as those shown in Plate IV, afford ample opportunity for the study of line and proportion and do away with all unnecessary detail.

In this, as in all other clay work, the constructive way of working must be insisted upon, and under no circumstances is a large lump of clay to be pressed, pinched and patted into shape.

Study in the round differs from the work in low relief in that the lines of the figure are studied from all sides instead of one.

After the necessary proportions have been decided upon, a tile of any desired size may be made and upon this as a base the figure is built. The important masses are first secured, the general position of the figure indicated, and gradually, by adding bits of clay, the form grows to the shape of the model as the child sees it from his point of view. The model is then turned about and the work in hand studied, compared and worked upon from another side; and then from all sides until the pupils' work conforms to the model in both form and position.

As in figure modeling in relief, the tendency on the part of children to finish up one part of the figure without due reference to the other parts, must be discouraged, and the entire form worked over, by degrees emerging into the finished model.

PLATE IV.

Modeled by pupils from ten to twelve years of age.

CHAPTER V.

Study from Animal Forms.

THE study of animal forms in both the relief and in the round is conducted in much the same way as that of the figure.

In order that pupils may touch and handle the object, it is well to have a number of models, either stuffed speci-

Plate V.

Modeled by children from ten to twelve years of age.

mens or casts; if these are not available, good toys furnished by the pupils may serve the purpose. The rabbit, turtle, alligator, or in fact, any animal in a position of rest may serve as an excellent model for study.

If a standing figure is made, sticks or wires will have to be used as internal supports and the clay modeled about these.

No attempt need be made to show texture, such as fur, hair, etc., in the clay, as this demands much skill and only becomes possible after considerable experience in clay-working.

PLATE VI.

Modeled by children from ten to twelve years of age.

CHAPTER VI.

Story Illustration.

STORY illustration is largely imaginative, there being no model, except the picture in mind.

The work in clay may be approached in various ways. The story in hand may be discussed with the aim of bringing out the moment of supreme action, or the point of most vital interest. The various ideas suggested by this point of the story may be modeled, each pupil putting his own imagination into his own particular work. In Plate VII, illustrating the rhyme "Tom, Tom, the Piper's Son," the part chosen for illustration was "away he ran." In each model Tom is represented as running, but the manner of getting the pig away varies with each pupil's conception of the story.

If preferred, different parts or chapters of a story in which there is a series of events, may be assigned to diffrent pupils for illustration. These when completed may be cast in plaster and so placed as to form a decorative freize.

Before attempting the work in clay, it is quite necessary to plan the illustration by drawing. Composition, as composition, cannot be considered in this sort of work; however, some suggestions may be made as the drawings of the

PLATE VII.

"Tom, Tom, the Piper's Son." Modeled by a Normal class.

pupils take form and seem to require it. One element especially may be emphasized; that is, the distribution of the illustration over the entire tile, rather than the crowding of it into one half or into the center.

After a definite arrangement has been decided upon, a tile (see page 22) of suitable size is built, and upon this the composition is sketched with a pointed tool or pencil. With these as guiding lines, the illustration is then modeled.

As in figure modeling, the relief should be kept low, all unnecessary detail eliminated, and the whole worked over, being brought gradually to the desired degree of modeling.

PLATE VIII.

Story of Ulysses. Modeled by children from ten to twelve years of age.

A—Throwing the discus.
B—The beggars' quarrel.
C—The man-eaters.
D—The sirens.
E—The trial of the bow.
F—The dangerous channel.

CHAPTER VII.

Architectural Ornament.

NOTHING can add so much to the understanding and appreciation of the typical architectural forms of the past, as the study and reproduction of these forms in clay.

In the intelligent copying of historic ornament, the pupil not only gains better and more definite ideas of form, but there may be developed in him an intellectual and aesthetic appreciation of modern architecture.

In connection with the clay-work in ornament something of the history of the different schools of art may be studied and additional interest thereby added to the work. Casts, photographs, and geographies may be most effectively used during these lessons.

In the elementary school, only the more simple forms of ornament are possible. Egyptian art offers an interesting study in the development of conventionalized forms from the lotus. From Greek art we may select the Doric, Ionic and Corinthian capitals, and make a study of the anthemion and some of the interesting frets. In Gothic art we find many symbolic forms used in capitals and for other decorative purposes.

Certain buildings of antiquity embodying some of the typical forms in architecture—such as the Parthenon,

Erectheum, and Roman arch—add not only a great deal of interest to the study, but give a more definite idea of the buildings themselves than can be acquired in any other way.

THE Egyptian is the most interesting of all the schools of art. It has a wonderful symbolism which children enjoy. Its chief concern was to glorify the gods and kings of Egypt. The predominant decorative form in Egyptian art is the lotus. This flower was particularly associated with the sun god and the god of the Nile. Thus it came to mean immortality and fertility. Fig. 16 sketched upon the board will give pupils an

FIGURE 16.

FIGURE 17.

idea of the natural form and enable them to understand something of the conventionalized form in both bud and blossom. The roseettes, taken from the top view of the lotus, after the leaves have fallen off, are among the oldest known. The lotus flower and bud, in combination making a border, are particularly good subjects for clay-work after the pupils have become familiar with them through drawing. Many of the Egyptian capitals were carved in representation of this familiar flower.

Fig. 17 shows the sacred beetle of the Egyptians as it was drawn by the ancient artists. The wings indicate protection,

the ball of sand between the feet holds the eggs, and the other circle represents the sun or creative power, the whole being emblematic of immortality. When cut or carved in the soft stone or steatite (soapstone) the ball of sand and circle were eliminated, and the outspreading wings and legs kept close to the body.[1]

The great sloping-sided towers or pylon, which characterized the entrance way to all Egyptian temples, and the obelisk, are particularly interesting as simple types of the earliest buildings of civilization.

[1] The scarab was, at least in one of its uses, an amulet, and was placed over the heart of the mummy or was used to replace the heart itself, the idea possibly being that the artificial heart was serving as a substitute until a new heart should be supplied. The name of the reigning king, his titles and something of his achievements were engraved on the flat oval surface. Others bear mottoes or friendly wishes and seem to have been gifts to friends. Many were deeply engraved and were intended most probably to be used as seals. The various kinds of beetle still abundant in Egypt are often of an irridescent bluish green. Possibly in the attempt to imitate this, all scarabs were so colored originally. However, many of those found have lost their original green tinting, and have taken on a dark brown color.

PLATE IX.

Modeled by pupils from ten to twelve years of age.

ALL that was best in Greek architecture was always embodied in the temples consecrated to the gods.

The three orders of architecture employed in ancient Greece, the Doric, Ionic and Corinthian, were distinguished by the capitals used. The Doric column is without a base and has a simple and massive capital, most probably developed from an earlier art of building in wood. Vitrurius, the ancient Roman architect, states that the Doric column was suggested by the figure of a man. The average man was found to be six times the length of his foot, hence the plain Doric column was made six diameters in height. The twenty flutes in the column may have been suggested by the drapery of the Greek dress.

The Parthenon, the most wonderful of Greek temples, was built after the Doric order.

The Ionic column is characterized by the spiral volutes of the capital. It has more moldings, its forms are richer and more elegant, and as a style it is lighter and more graceful. In the ruins of Ninevah numerous tiles have been found, in which, *in relievo,* one may recognize the primitive form of the Ionic temple.

Vitrurius claims that this column was suggested by the figure of a woman, being eight and one-half to nine and one-half diameters high. The scrolls at the sides of the capital may have represented hair and the rich moldings between, a necklace. The flutes number twenty-four and may have been, as in the Doric, suggestive of Greek drapery.

PLATE X.

Modeled by pupils from ten to twelve years of age.

The most perfect expressions of the Ionic order are the temples of the Wingless Victory and the Erectheum on the Acropolis at Athens.

The Corinthian order, an outgrowth of the Ionic, is distinguished by its rich capital formed of acanthus leaves. The acanthus is a plant common in southern Europe. The possibilities of the acanthus leaf as ornament are said to have been suggested to a Greek artist by the effective picture made by a basket surrounded by the leaves of the acanthus, which had accidentally fallen upon it. The Corinthian column was about ten diameters in height.

The only perfect illustration of a Greek Corinthian capital, that has been found, is the choragic monument of Lysicrates in Athens.

The order was not very common in Greece; however, among the Romans, it was very much employed, its richness probably appealing to the Roman love of elegance. The Greek orders, elaborated by the Romans, were frequently used in the triumphal arch, the characteristic product of Roman design.

The most notable form of Greek ornament was the anthemion, often called the "honeysuckle ornament." This was carved and painted in profusion, decorating private and public buildings, furniture, vases, etc. It is employed as a unit of design in many of the Greek borders.

The egg-and-dart decoration, seen so often in Greek moldings and forming part of the decorative scheme of the Ionic capital, is slightly suggestive of the lotus-and-bud border of the Egyptians.

IN the study of Gothic architecture, we find decoration becoming more elaborate and profuse. Symbolism enters into all the ornament employed in churches and cathedrals. An understanding of these emblems and their significance develops a greater appreciation of their forms.

Many of the grotesque images, or gargoyles, which were placed on cathedrals and employed as decorative spouts for throwing water from the roofs of buildings, are most interesting subjects for clay-modeling.

The pointed arch, the characteristic feature of Gothic art, is found in most of our modern churches and cathedrals. Here also we find employed many of the emblems of the earliest Christian art. The trefoil, quarterfoil, and fleur-de-lis are quite commonly used in windows and doors.

The beautiful bell tower or Campanile at Florence, designed by Giotto, stands as one of the simplest yet most beautiful monuments of Gothic art.

FIGURE 18.

Gothic Emblems.

A—A circle, representing eternity, having neither beginning nor end.

B and C—Trefoils, significant of the trinity.

D—Quarterfoil, significant of the four evangelists.

E, F, and G—Crosses, used by different religious orders.

H—Fleur-de-lis, purity.

Reference Books.—Grammar of the Lotus—Goodyear. A History of Architecture—Hamlin, A. D. F. Architecture of Classical Antiquity—Buehlman, J. T. History of Greek Art—Tarbell, F. B.

PLATE XI.

Modeled by children from ten to twelve years of age.

BEFORE the modeling of any historic form in ornament, the model should be most carefully studied and drawn several times if necessary. If a cast is not available for study, enlarged drawings made upon the blackboard will be quite satisfactory.

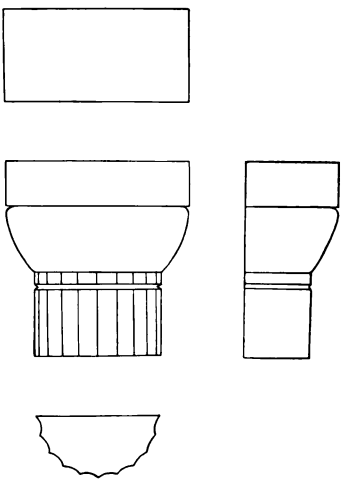

FIGURE 19.

In preparing for this modeling, several drawings may be necessary; viz., a front view, a side or sectional view, and a top view. The capitals require the three drawings, and it is often better to use a fourth, as in Fig. 19. In buildings and many relief forms, only the front and sec-

tional views are needed. After all the necessary drawings have been made the pupil proceeds with the clay. The drawing giving the front view is used to build upon. If a good photograph or picture is not available, two front

A B

FIGURE 20.

views should be made, one being used to build upon and the other for comparison and study.

In A, Fig. 20, long coils of clay have been used to outline the form of the capital, the clay being well pressed down on the paper, espcially on the inside. The inner space is then filled, with due reference to the difference in relief in each of the three portions of the capital. Large pieces of clay may be used in filling in these spaces, not however without care being taken to wedge the pieces well together.

Thus, having been brought to the stage of development as shown in B, Fig. 20, the sectional drawing now becomes of value in studying the relief and bringing the model into conformity in every way to the drawing. In many cases it is desirable to cut on the outlines of a drawing and then use the form as shown in Fig. 21.

The flutes in the column may be very successfully formed by the controlled movement of the thumb, Fig. 22. After the capital has been well smoothed from the front,

FIGURE 21.

FIGURE 22.

it may be lifted carefully from the paper and if any loosely worked places appear on the back, these may be filled in. The piece may then be laid aside to dry.

The method of building is quite the same in modeling any of the architectural forms. However, if it is desirable to build upon a tile, as in the case of the flower forms and borders, the lines of the drawing may be well blackened with a soft lead pencil and then transferred to the clay by placing the drawing downward upon the tile and rubbing over the surface. The paper is then removed and the form outlined with coils of clay, the inner space filled with pieces of clay and the study modeled to the desired relief.

CHAPTER VIII.

TILE.—SQUARE.

A CLAY tile offers ample opportunities for developing some simple and original problems in design, while at the same time creating an appreciation of the technique of clay-work. The simplest form of the tile, that in which the line or design is incised, will be first considered.

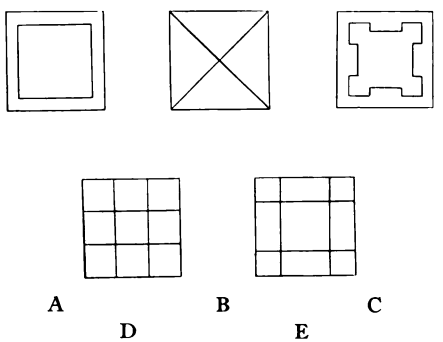

FIGURE 23.

If practically nothing in design has heretofore been given, the simplest elements applicable to a square should be dwelt upon. Three essentials in developing such a design should be emphasized. It can be shown: (a) That

the lines of the design when following the outlines of the form, A, Fig. 23, tend to strengthen the whole by supporting the sides, while in B the radial lines, pulling the ends of the side lines toward the center, do not add to the support of the form, but tend to weaken the whole structure of the design. Compare A and B, Fig. 23. (b) That the angles of a rectangle may be emphasized or braced by the accent in the lines of the design falling at the corners, C, Fig. 23. (c) That an interesting variety in spacing, E, Fig. 23, is more pleasing than the monotonous uniformity of D.

With these suggestions, the child has now received some definite ideas with which to proceed. These principles, serving as a working basis, enable him to handle the problem in design with more intelligence, interest and ease.

After the design has been satisfactorily developed, it is accurately drawn upon ordinary paper. The lines of the design, one-fourth of an inch in width, are blackened with a soft pencil, in order to transfer readily to the clay.

The finished design is next to be worked out in clay by the pupil. For this work he is supplied with a modeling board, or piece of oilcloth as the case may be, a tool, (Fig. 1, page 16), and a lump of clay. A damp cloth is kept about the clay, from which the child works, thus retaining the moisture.

The child rolls out a piece of clay about one-half inch in thickness and forms the outside edge of the tile; next he fills the inner space, building piece by piece, using the thumb to wedge the pieces well together. (Making of Tile. See page 22.)

PLATE XII.

Designs developed by children from ten to twelve years of age.

If the tile is not well constructed, that is, the pieces firmly worked together, firing will cause it to break.

After the tile reaches the necssary thickness, from three-eighths to half an inch, it is smoothed well, then turned over, and if any loosely worked places appear on this side, they are filled in and smoothed as was the first surface.

FIGURE 24.

This finished, the clay is ready to receive the design, which is now to be transferred to the tile. The paper is placed face down upon the clay, care being taken to get the placing exact. By slowly rubbing over the paper, the drawing will be readily imprinted upon the clay. The paper is then removed and with the pencil end of the tool,

(Fig. 1, page 16), a broad line one-eighth of an inch in depth is made through the center of the lines of the design, Fig. 24.

With the broader end of the same tool, the clay may be removed back to the edge of the line of the design. In doing this the design should have the appearance of grooves with rounded edges, rather than with sharp, vertical edges. The rounded edges cause the glaze to flow more freely to the lines of the design, whereas, if the edges are left clear cut, one will be disappointed after a firing, on finding the white edges of the clay peering audaciously through the glaze.

In grooving the tile, care must be taken to keep the depth and width of the line uniform throughout. After the grooving has been done, the lines of the design and the tile in general may be smoothed, the thumb and finger, moistened on a damp cloth, serving as excellent tools for this purpose.

After being thoroughly dried the tiles may be closely packed into the kiln for the first or bisque[1] firing. If desired, the pieces may then be glazed and given the second firing.

[1]Bisque, or biscuit, is pottery after the first firing, and before the application of glaze.

PLATE XIII.

Grooved Tiles.

Tiles.—Oblong.

THE oblong tile seems naturally to follow the square since it gives the pupil opportunity to put into practice the principles which were pointed out as essential in the designing of a square tile.

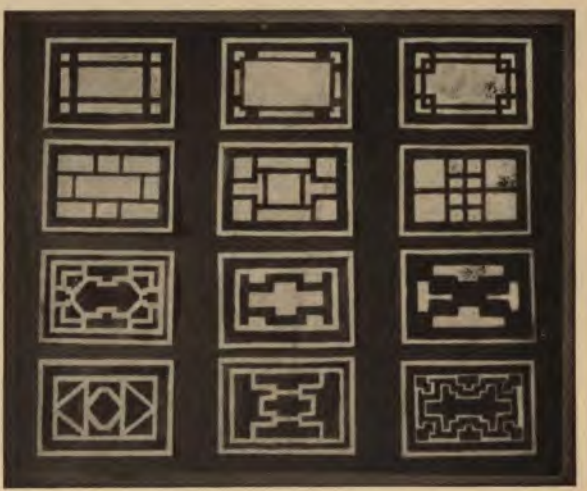

Plate XIV.

Designs developed for oblong tiles.

The same principles hold good in the one as in the other, and the children will readily discover that with slight changes the same design used in a square can be easily

adapted to the oblong. This, certainly, is to be encouraged. Others will prefer to make new designs to try their inventive skill, invariably working to accentuate the corners and secure variety in the spacing.

The working in the clay should be carried on exactly the same as in the square tile.

PLATE XV.

Oblong tiles by children from ten to twelve years of age.

Tile.—Low Relief.

As the child gains skill in handling the clay and in originating successful designs, some variations in developing the design upon the clay may be suggested. For example, after the drawing has been transferred to the

Figure 25.

clay, and an incision about one-eighth of an inch deep has been made along the lines of the design, the background may then be carefully removed, leaving the design in very low relief.

This work is done using the broad chisel-shaped end of the tool, B, Fig. 1, page 16, for the larger spaces, and the narrow tool, A, Fig. 1, page 16, for the smaller parts.

Working in this way, Fig. 25, caution must be exercised to keep the same relief throughout all the parts, and the tendency to dig into the clay must be strictly guarded against.

After this has been done, the spaces may be well smoothed. Now the pupil may be led to criticise the finished work in clay. He may ask himself such questions as: Are all lines firm? Are all angles well defined? Are all the spaces of the design well finished?

Thus, the child is led to see, to judge and to criticise all future work which he may do, with some degree of understanding.

PLATE XVI.

Tiles in matt green glaze developed by children from ten to twelve years of age

TILE.—CIRCULAR.

A CIRCULAR tile involves other elements than those emphasized in a rectangular tile. In such a problem suggestions may be made which will lead the pupil to thoughtful effort in designing.

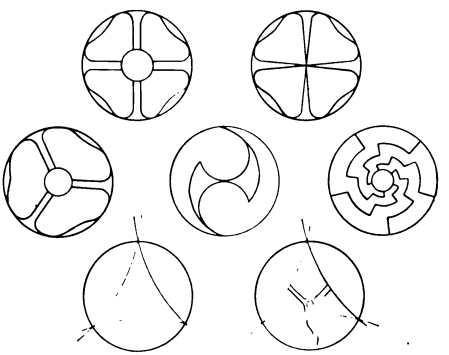

FIGURE 26.

It can be shown: (a) That a design applicable to a circle may radiate or grow from a central mass, A, Fig. 26. Emphasis should be placed upon the center as a definite mass or growth spot rather than as a mere point, the former giving more strength to the design. Com-

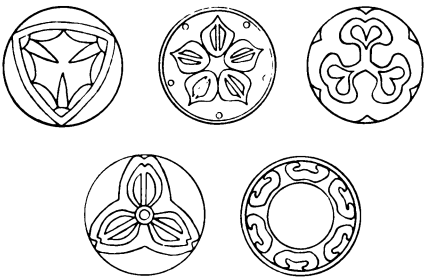

FIGURE 27.

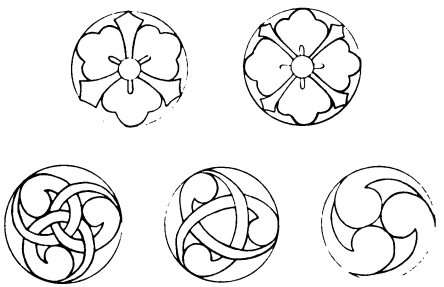

FIGURE 28.

pare A and B, Fig. 26. (b) That a circle broken into thirds and fifths is equally as interesting as one divided into halves, fourths, etc., C and E, Fig. 26. (c) That rotary forms or masses moving about a center possess

FIGURE 29.

strong rythmic movement, D and E, Fig. 26. (d) That a circle may be braced by arcs and these in turn broken up with interesting forms, F and G, Fig. 26.

Elements which are unnecessary or meaningless in a design must be avoided and the whole kept simple by admitting only those which have a well-understood purpose.

As illustrative material, sections of seedpods,[1] plant stems, etc., Fig. 27, may be shown, also some of the simple forms of Japanese emblems.[2] Fig. 28.

If the child's inventive power has been stimulated by such suggestions as the foregoing, he has received some-

PLATE XVII.

Designs for circular tiles.

thing quite tangible to him, and by working out one thought at a time, he may be able to combine lines and areas into pleasing and effective forms, even though they are quite elementary. He also soon finds that these principles may be applicable not only to designs for clay, but also to other materials in which he may wish to express himself.

[1] Etude de la Plante, by M. P. Vermeuil.
[2] The Gate Beautiful, by John Ward Stimson.

The problem of the circular tile may be carried out (a) in simple incised line; (b) in low relief, the background being removed; or (c) in high or low relief, the form being built up piece by piece. The last of these methods of working will now be considered.

After the design has been decided upon and the drawing completed, the pupil will proceed to build a round tile. In order to keep the circle true, it is well to draw a circle, with compass, upon the modeling board or heavy paper, and build upon this. The method of building a circular tile is quite similar to that described for the square tile, page 69. After smoothing both sides, the design is transferred to the clay. Now, instead of making an incision along the lines of the design, a very small coil of clay, about the thickness of a slate pencil, is rolled out and the design is outlined with this, care being taken to wedge it well on to the clay, especially the inside edge of the coil. Next the inner spaces are built up piece by piece, bringing the form to the desired relief.

In the building and finishing of this tile, some decision of style, and some exercise of taste is unconsciously acquired.

PLATE XVIII.

Circular tiles developed by children from ten to twelve years of age.

CHAPTER IX.

Pottery.

THE study of pottery and pottery-making lends added interest to history and geography, and gives abundant opportunity for the study of the refinements of form and the subtleties of line and curve. It also offers many problems in design applied to objects which, when completed, may prove not only good as art products, but useful as well.

The making of pottery has been one of the modes of expression with nearly all prehistoric races. The probable way of working among the primitive people of our own land is full of interest.

The clay was usually dug from the hillside by hand or possibly with the aid of a stick or shell, the finer clay being separated from the coarser as it was gathered. The fine clay was used for the smaller utensils, while large earthen pots and water jars were made from the coarse.

After a sufficient amount had been gathered, it was taken to a nearby creek or river, where it was washed carefully, thus removing all large and coarse pebbles.

Often the raw clay, as found, was too short and would break easily. To remedy this small shells were ground between stones which, in the form of a powder, were mixed with the clay. In this way the clay was tempered,

rendered more plastic, and consequently could be worked with greater ease.

Many old pieces of pottery give evidence of having been moulded inside of baskets, the imprint of the reeds being left upon the outside of the bowl. On this account, it is conjectured by some that pottery-making followed the making of baskets and, in fact, was most probably suggested by it. The working round and round and upward upon a basket led most naturally to the conclusion that clay might be rolled into strips, similar to reed, and coiled round and round and upward.

Moreover the imprint of the basket given to the clay form was an awakening to the possibilities of decoration. These imprints most likely suggested the zig-zag, scroll and simple line designs so characteristic of the earliest pieces. One idea led to another and from these more simple pieces we come to those more elaborately decorated, going from the incised line to painting with colored clays on the unbaked surface. These painted designs take the form of a simple border arrangement in line, similar to the incised lines, or become more elaborate, covering the main body of the jar, leaving the undecorated top and bottom in contrast. Nor was the decoration limited to line arrangements, but we find many motifs derived from nature, both flowers and animals playing a vital part in the decoration.

The painting of one clay upon another was done with a brush made by shredding the fibers of a dried plant. Bits of the dry clay were pulverized and mixed with water to the consistency of cream, then applied to the jar. After a piece had been completed it was set aside to dry.

PLATE XIX.

Indian Pottery.

The primitive kiln was nothing more than a hole in the ground, filled with wood, dried grass, bark, and bits of broken pottery. When the finished piece had become well dried in the sun, it was placed in this hole, covered inside and out, packed well with all sorts of debris and allowed to bake for a week or more. After being sufficiently baked, it was allowed to cool very slowly, to prevent breaking. Thus we see something of the beginnings of a craft, which was born of strict necessity.

PLATE XX.

Advanced hand-built pottery.

THE fact that this manner of clay building, after the fashion of these prehistoric people, is the simplest, and also, that it gives a distinctive quality to the finished pieces, makes it the most desirable method in the public schools.

Before attempting the building of any pottery, a lesson on the form of bowls, jars, vases, etc., should be given.

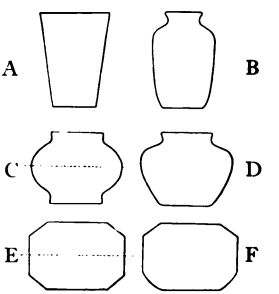

FIGURE 30.

It can be shown: (a) That variety of curve in the contour adds interest to the form. Compare A and B, Fig. 30. (b) That the upper and lower halves of the contour should vary, otherwise the form is divided half and half. Compare C and D, E and F, Fig. 30. (c) That the subtle outward curve toward the base of any form gives grace. B, D, F, Fig. 30.

Examples of Indian bowls and jars, also some of our more modern pottery which bears the mark of good form and design, will be helpful in the classroom.

Before going to the clay, the pupil should have made a drawing of a simple bowl form which he wishes to build. If one-half the design is drawn on heavy paper, it can be folded on the center line and the entire form cut out. This taken to the clay lesson is a constant reminder of the shape to be developed and every effort should be made to keep to that particular form.

FIGURE 31.

For the first simple bowl form, little is needed besides the clay and the plaster bat upon which to build. If the bats have not been provided, roofing tile may be used or the ordinary modeling board.

The plaster bats (see page17) may be allowed to remain in water until a sufficient amount has been absorbed. This

keeps the plaster from taking the moisture from the clay.

The clay from which the child works should be kept covered with a moist cloth, as this does away with the otherwise necessary pans of water.

Suppose a small open bowl, the base of which measures three inches, is to be made.[1] With small bits of clay well worked together, the bottom may be built upon the bat to the required diameter, viz., three inches, and from three-eighths to one-half inch in thickness. The clay must be well worked together before any coils are added, as it is a very difficult matter to patch up any careless work after the walls have been started. Fig. 31.

The base being well made, it is next ready for the first coil. The coils are made by rolling out a piece of clay on the table, using the fingers of both hands, and not the palms of the hands. With the outward movement of the hands, the fingers are spread apart and the clay drawn out. If rolled and pressed with the palm of the hand, the clay loses much of its plastic quality and breaks. The coils should be about half an inch in thickness; however, the size of the piece determines the thickness of the coil. If the coils are too heavy, the piece looks cumbersome and crude; if too thin, the walls sag or break.

The coil is then fastened to the outer edge of the base and coiled upon it, not around it, Fig. 32. The bowl may be built one coil at a time, and after some skill in handling has been acquired, the walls may be built up spirally, several coils being added before the smoothing is done.

[1] It is well to demonstrate before the class the method of starting this form of work.

In smoothing and pressing the coils together, one hand should be kept on the outside of the form while working upon the inside, thus keeping the inside pressure from destroying the contour; when working upon the outside, the walls should be braced from the inside, Fig. 33.

FIGURE 32.

Before the successive coils are added, the preceding coil should be flattened a trifle with the thumb, thus making a better surface for the next coil to rest upon. In this manner coil upon coil is added until the piece reaches the required height.

The bowl, if on a bat, may be easily turned about and the curve of the contour studied from all sides. If the

walls seem too thick, some of the clay may be removed with the wire tool, C, Fig. 1, page 16. If any unevenness appears upon the surface, this also may be remedied with the same tool, or on the other hand, if any depressions

FIGURE 33.

appear which destroy the general contour of the form, these may be built up with small bits of clay.

The top is then leveled, the edges rounded and the piece well smoothed, using the tips of the fingers moistened on the damp cloth. The entire surface should be gone over in this manner, thus bringing the finer clay to the outside.

After the bowl has been allowed to stiffen a little, it

may be taken off the bat, turned upside down, and the bottom finished, all superfluous clay being removed with the wire tool. A slightly concave effect may be given to the bottom by pressing, with the thumb, slightly inward upon

PLATE XXI.

Pottery forms modeled by children from ten to twelve years of age.

the center, and gradually rounding outward to the outside edge.

Under no circumstances must the form be allowed to harden before it is well finished.

The outward curve of a bowl or vase form is secured by placing the successive coils upon the outside edge of the preceding coil. This, however, need not be considered in the first stages of pottery building, since in their primary efforts children naturally tend to push the clay ontward. If the walls of a form are to curve inward, the coils should be placed on the inner edge of the preceding coil.

If tin or plaster-lined boxes are not available, unfinished pottery pieces may be kept in good condition by wrapping a damp cloth about them and covering all with oilcloth.

PLATE XXII.

Advanced hand-built pottery.

POTTERY.—DECORATION.

IN applying decoration to pottery only the more simple kinds are possible with young children. In fact, it is only through the use of simple decoration that the cultivation of good taste may be insured.

The incised line is perhaps the simplest form of decoration and quite the natural one, too, the nature of the material being considered. The incised line may take the form either of a border or a decorative motif to be repeated about the form.

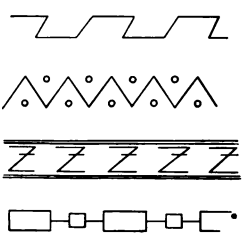

FIGURE 34.

A few suggestions concerning the decoration of pottery should be made before planning a design. It can be shown: (a) That a form must admit of decoration. If a form is built to which handles or feet have been added, these in themselves are often a form of decoration and anything further may lead to over-decoration, destroying an otherwise acceptable piece. (b) That the design should be placed in its proper position; viz., a border should be placed far enough from the mouth of the

form, so that this space, the space occupied by the design, and the remaining space on the jar give an interesting variety. (c) That the point of greatest curvature in the contour should remain undecorated; any decoration at this point tends to emphasize the curvature and to destroy, in a measure, the subtlety of the curve.

Each design should be planned definitely before any attempt is made to apply it to the form.

If the design is to be incised, the form is divided into halves, fourths, etc., as the case may be, and the design unit placed in each space. The pointed tool, A, Fig. 1, page 16, is used for incising the line, and the broader end of the same tool for rounding the edges a trifle. This softening of the edges causes the glaze to flow more evenly to the lines of the design.

Another source of decoration giving quite a pleasing effect to unglazed ware is the painting of the design upon the form with colored clays.

The dry clay should be pulverized and the coloring materials which are to be used should be mixed with a little gum tragacanth dissolved in water. After this has been done the clay and coloring materials should be ground together, using a palette knife on a glass slab. Enough water should be added to make a thick cream and this ground again as before. It is then applied to the clay with a brush. The design should be painted when the clay is quite stiff but not dry, a condition called "leather dry." Yellow ochre, which gives red, and oxide of copper, giving black, are two colors which may be used very effectively in combination for this sort of decoration.

When the design is to be painted upon the clay, the design should be transferred to the clay, not drawn upon it. The circumference of the form is definitely obtained by fitting a slip of paper about it. This paper is then spaced and the design drawn thereon. A soft pencil may be used to blacken the lines of the design. The paper is then placed about the form, the design pressed against the clay, and by rubbing over the paper, the design is imprinted upon the clay. The paper is then removed and the colored clay applied to the surface.

In transferring the design to the clay in this manner, the lines of the design are not distorted by tool marks, and the entire decoration is obtained directly, definitely and accurately.

PLATE XXIII.

Pottery painted with colored clay.

CHAPTER X.

Glazing.

THE prepared glazes, both bright and mat, come in the form of a powder and can be ordered in many desirable colors. This dry powder is mixed with water to the consistency of cream. It should be well stirred to break up all lumps. When it is quite smooth, it is ready to use.

The bisque ware to be glazed is first allowed to remain in water, until it has absorbed all it can take in. Then it is removed and dried with a clean cloth, until not a particle of water remains on the surface. Now the piece may be dipped into the glaze. If the glaze is sufficiently thick and the bisque ware not wet, it will adhere readily; on the other hand, if the glaze is too thin, or the bisque piece too wet, the glaze will break and cover the piece unevenly. If this should occur the piece may be rinsed off and allowed to dry a little more and the operation repeated. A large spoon may be used to throw the glaze over the form and then by shaking rather vigorously the surface may be evenly covered. After allowing it to dry thoroughly it is ready for firing.

In stacking the glazed ware in the kiln, the pieces must be set securely upon stilts, and not allowed to touch.

It will require considerable practice and experience to become proficient in both firing and glazing.

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